Security of Energy: The Conflict after Next?

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Introduction

Energy policy … could be as crucial to our country's future as defense.
--Tony Blair

The vulnerability of the industrialized world's energy infrastructure has been an international security concern for the last several decades. In recent years energy security has taken added significance as the need for petroleum products has grown, and the sources of these products have shifted further from the Organization for Economic Co-Operation and Development (OECD) states, to unreliable or unstable regions, primarily in the Former Soviet Union (FSU) and the Greater Middle East (GME). Indeed, the last few years have only highlighted this vulnerability, such as Russia's varied disputes with her neighbors, militant activities in Nigeria and the general upswing in Islamic radicalism and hostility toward the West.

The next "hot war" or global conflict of cold war proportions may be over energy and the broader impact that industry has on the international economy. What is emerging in many countries is "Oil Nationalism," in which national control of energy is the manifestation of national strength and the source of political power. Quite often, revenues from the nationalized oil companies (NOCs) are lavished on social programs of questionable value, while substantive economic or infrastructural reforms are ignored.

Talk of strengthening the Gas Exporting Countries Forum, is also causing concern among energy importing nations. Natural gas can be supplanted by other sources of energy, so an exporters' cartel will not have the same global impact as OPEC. Nevertheless, it is clear that gas importers, which are predominantly OECD members, are uncomfortable with the prospect of another, mostly non-OECD, cartel.

Not all the concern is with carbon-based energy resources. The renewed interest in nuclear technology has the potential to generate clean and cheap energy; though, even when dedicated to civilian use, it can be converted to highly enriched, or weapons grade, uranium (HEU). Furthermore, plutonium extracted from spent nuclear fuel can be enhanced to weapons grade, thereby heightening the consequences should fissile material fall into the wrong hands.

The energy supply, whether in the form of petroleum-based resources or fissile material, can be threatened through natural disaster, human error, environmental concerns, and infrastructural

failure; the most immediate concerns are deliberate disruption of the flow. To secure the energy supply chain in its entirety necessitates a coordinated, international campaign between the respective militaries, civilian and private sectors, on a grand scale requiring a level of effort that no single nation can afford. A consolidated and collaborative effort between dependent industrialized nations would be better suited for such a task, particularly if the use, or threatened use, of force is required. A variety of non-governmental organizations (NGOs) address energy concerns, security being one of them, but they either lack unity of effort or credibility, and few of these organizations consider the security of nuclear fuel within their construct.

This paper addresses the continuity and safety of energy resources through collective security measures. Additionally, it will define and address the major threats to the global energy supply chain, and the importance of infrastructural resiliency to allow market forces to prevail. Its purpose is not to outline a clearly defined policy, but to generate discussion and propose a range of concepts to achieve a broader goal using existing international legal and cooperative structures already.

Over the next twenty-five years the anticipated demand for energy will increase by more than 50 percent, and fossil fuels will meet nearly 90 percent of this requirement. Oil will still be the fuel of choice, followed by natural gas and coal. Natural gas is expected to overtake coal in the number two spot in the next five to ten years. (Birol)

To meet this demand the commensurate need for fossil fuels will rise significantly, exposing the transportation sector in particular. As there is no fossil fuel substitute that can be produced economically, at least over the next quarter century, all indications point to a continued reliance on oil and gas. For instance, world oil production will need to increase from a current rate of 82 mb/d to 115 mb/d in 2030. During this time the OECD share of world oil production is expected to drop from approximately 25 percent to 12 percent, indicating a higher level of dependence on unstable sources into the future. (Birol)

Much of the known petroleum reserves are located in inhospitable geographic space or regions. Indeed, more than 60 percent of the world's proven oil and gas reserves are located in the former Soviet Union or the GME, and experts have noted that these regions still have significant unexplored deposits. (Birol)

The full oil and gas cycle is complex, elongated, and sensitive to disruption, with countless links in the chain susceptible to failure. Broken down into its basic components, the cycle is comprised of a series of events starting with field exploration, production, refining, and concluding with retail and final consumption.

This has not gone unnoticed by terrorist groups or hostile governments, which have directed attacks against Western energy assets for the purpose of disrupting the flow of petroleum products. For instance, Osama bin Laden, in a 28 September 2001 statement, declared a financial and economic jihad by striking "the key pillars of the U.S. economy." (Ehrenfeld & Lappen)

Dr. Hussein Shihata, a scholar of Islamic economics at Cairo's al-Azhar University, issued Fatwas supporting bin Laden's economic jihad. Shihata's Fatwa of 10 July 2002 proclaimed the goal is to "weaken the economy of the Zionists, the Crusaders and their allies, while at the same time, it [economic jihad] strengthens the Arab and Islamic economy in a way that make it a self-dependent economy ." (Ehrenfeld & Lappen)

Carrying out attacks on the West has assumed a new dynamic, particularly with the defeat of the Taliban and al-Qaeda in Afghanistan and the loss of the traditional terrorist bases there. To compensate for this setback, Syrian-born terrorist, Mustafa Setmariam Nasar released "The Call

for a Global Islamic Resistance," in which he advocates for a global terrorist war carried out by small groups or individuals, thereby creating a decentralized cadre of operatives. These types of terror groups are already in operation; the Madrid and London attacks were carried out by small, autonomous cells with no formal links to al-Qaeda or any other large terror organization, and the ability for such groups to shift to the global energy supply chain is not outside the realm of possibility.

Oil and gas pipelines, by their very nature as static assets, are inviting targets. The Iraqi insurgents frequently attack pipelines as a deliberate means of destabilizing the government and denying it of revenues. The recent pricing dispute between Russia and Belarus is another example of the growing political nature of energy security. Though the dispute was resolved, it demonstrates the vulnerability of importers to extortion by supplier nations. Finally, as more pipelines are built in remote areas, bunkering, or tapping into a pipeline to steal crude oil, has become a growing problem.

The maritime transport of oil and gas presents another host of security concerns. The natural "choke points" channeling outbound maritime traffic from the petroleum producing regions in the GME have also received attention as convenient locations to launch ground-based attacks on shipping. The attack on the French tanker, Limburg, off the Yemeni coast in October 2002, was a clear indication of al-Qaeda's attempt to sever the West's "umbilical cord." (International Energy Agency)

Incidents of piracy have increased in recent years, with upsurges reported off the coasts of West Africa and Iraq, in addition to the traditionally pirate-infested South China Sea and Indian Ocean. The International Marine Bureau noted a 37 percent increase in piracy worldwide in the second quarter of 2007 when compared to the same period a year ago. (ICC-IMB) The premiums charged for ships operating in piratical waters are naturally higher, thereby raising the overall costs to consumers. For instance, the payout for the Limberg attack was $70 million, one of the largest on record. (The Economist, 22 April 2006)

As the economic stakes have increased, the importance of securing the delivery of energy products is no longer purely a commercial concern but a governmental one, necessitating a strong and sophisticated security presence few businesses can afford. These conditions are of significant concern to the OECD trading partners and more specifically the European Union (EU), which because of its proximity to these unstable regions and high dependence on imported petroleum products is particularly vulnerable.

A cursory look at the numbers underscores the economic threat. The OECD's 30 member nations have a combined Gross Domestic Product (GDP) of $33.1 trillion and more than a billion inhabitants. Approximately 75 percent of world merchandise trade occurs within the OECD, of which 40 percent is with the European members. The EU's combined GDP is $12.8 trillion, or roughly a third of the OECD total. (OECD Factbook)

The EU currently imports 79 percent of its oil and 70 percent of its gas from non-OECD states, primarily from the Organization of the Petroleum Exporting Countries (OPEC) and Russia. (OECD Factbook) These conditions will only grow over time, creating conditions where any severe or protracted cut in the EU's energy supply would adversely ripple through the economic and political underpinnings of the world's industrial engine.

Recent talk of a "Nuclear Renaissance" is gaining the attention of policy makers as an alternative to fuels. There has been opposition to nuclear power since the Three Mile Island (1978) and the Chernobyl (1986) incidents and among many environmental NGOs, though in light of higher fuel costs and the drive toward energy diversification, it was perhaps inevitable nuclear power alternatives would be looked upon more favorably.

As nuclear energy is used primarily for electricity generation, it is instructive to look at the anticipated demand. By 2030 the world's electricity generation will increase by 85 percent, from 16,424 billion kilowatts to approximately 30 billion kilowatts. Electricity generated from nuclear power is expected to rise from 2,619 billion kilowatts today to over 3,000 billion kilowatts in 2030, roughly a 40 percent increase. (U.S. Energy Information Administration (EIA))

In more concrete terms, there are 440 nuclear reactors worldwide producing about 16 percent of the world's electricity requirements. Projections are imprecise, but a 50 percent increase can be expected in the number of reactors by 2030. (EIA) The U.S. Nuclear Regulatory Commission (NRO) has 20 domestic license applications for new plants it has yet to examine. Further complicating matters is that many of the nuclear power plants in operation today must be replaced in the next 15 to 20 years, an expensive task with it share of risks. Considering that apart from the licensing, environmental impact analysis and so-called "public hearings," it takes approximately a decade to build and put a plant into operation, it is crucial to begin now the process for the next generation of nuclear power facilities.

Nuclear power is seen by many nations as the means of delivering cheap electricity to its citizens. Yet, it is a capital intensive and technologically demanding effort that few developing nations can accomplish without external assistance. Though the Nuclear Non-Proliferation Treaty (NPT) notes that peaceful development of nuclear power is a state's "inalienable" right, such technology in the hands of unstable or hostile regimes is not a common good. (Nuclear Non-Proliferation Treaty) In fact, putting this technology in the hands of dozens of developing states may well lead to uncontrollable proliferation challenges. (Braun & Chyba)

As more countries contemplate nuclear power, many of them in the developing world, it brings to question their ability to manage and safeguard these technologies. This concern has generated new proposals to keep fuel-making technologies under control by supplying developing nations with enriched uranium and taking back the spent fuel for reprocessing or storage.

The goal to relieve countries of reprocessing capabilities as a means of generating weapons grade material through the services of a nuclear fuel bank has received much attention recently. In July 2006, the United States and Russia initiated an agreement by which Russia would accept spent nuclear fuel for reprocessing. In May 2007, Russia and Kazakhstan, which together control 15 percent of the world's uranium reserves, signed an agreement to develop a joint enrichment center in Angarsk, East Siberia.

What becomes clear is the vulnerability of both fossil and nuclear fuel to a variety of threats, ranging from deliberate disruption, extortion or theft. The critical place that energy holds in a modern society can not be overemphasized. A sustained disruption could have catastrophic consequences to most countries' economic viability, and nuclear fuel has the dual threat of a vital fuel requirement and the potential as a weapon of mass destruction (WMD) ingredient. It is with these concerns in mind the authors of this paper put forth the argument for an international and multi-level body to provide oversight of energy security functions.

With state-directed energy disruptions, there are international precedents which should be considered. For instance, can denial of energy resources be considered a UN Article 51 offense? (United Nations Charter, Article 51)

NATO's 1999 Strategic Concept makes clear reference to energy; Paragraph 24 notes, " Alliance security interests can be affected by other risks of a wider nature, including acts of terrorism and by the disruption of the flow of vital resources." (NATO) Could the deliberate disruption of energy fall within UN Article 51 or become a NATO Article 5 event?

Securing the energy supply infrastructure has become a prime concern of most nations. While diplomatic and political measures must always take precedence over other means of pursuing energy security, the use of military and security forces can never be ruled out in the face of threats posed by non-state groups and hostile regimes. The current scramble to make the best possible arrangements with energy suppliers, and the ad hoc means of protecting major land and maritime energy supply routes, choke points and nuclear facilities is inefficient and may lead to competition among consumer nations, higher energy costs, waste, and even confrontation. Common interests suggest common security measures.

There is currently no broad-based energy security regime. The closest body that exists today is the IAEA which acts in an advisory capacity to the member states. It only recently began considering nuclear energy, and it generally does not address the geopolitical aspects of energy security within the context of this paper. The OSCE's Energy Security Information Mission has initiated political dialogue, but what happens when dialogue is no longer feasible, or when the belligerents are trans-national actors, terror organizations or something worse? (Snoy)

Creating a broad security regime dedicated to ensuring the flow and protection of the energy supply chain would alleviate many of the problems noted earlier in this paper. The questions are what form should this regime take, how would it leverage existing efforts, how would it operate and from where would it derive its legitimacy?

A possible template for this regime would be the Proliferation Security Initiative (PSI). The PSI is not a formal treaty, but an unconventional grouping of states that have the capability and willingness to take steps to counter WMD proliferation. It is, as John Bolton, the primary author and then Deputy Secretary of State, referred to it, "a statement of purpose," and operates fully outside of the UN's purview. (Bolton) However, PSI can point to UN Security Council Resolution 1540, which "calls upon all States…to take cooperative action to prevent illicit trafficking in nuclear, chemical or biological weapons, their means of delivery, and related materials." (UNSC Resolution 1540) The argument can be made that a PSI-*like* coalition, an energy security initiative or ESI, designed to ensure and safeguard the flow of the world's energy supplies, will induce dependent nations to bind to a collective security regime.

With an existing and trained infrastructure, NATO would appear to be the first choice to provide the framework for such an organization. As the security guarantor of the North Atlantic Alliance, and whose members form the core of the OECD, is NATO capable of meeting these pending challenges? Can the Alliance, or any other collective security force, physically secure the energy supply chain as well as calm nervous economies? Should it?

NATO has already taken steps to assume a prominent position. For instance, the February 2006 NATO-sponsored conference on energy security, in which the Alliance openly discussed possible roles in the field and asked for greater input from the academic and commercial communities, is an indication of the new emphasis placed on this issue.

That the majority of the OECD nations are also members of the EU, the Atlantic Alliance, or both, has forced NATO and the EU to consider how energy security may be enhanced. However, the March 2006 EU Green Paper entitled "A European Strategy for Sustainable, Competitive and Secure Energy," makes no reference to a potential role for the EU Battle Groups regarding a terrorist or other hostile threat to the free movement of energy supplies. (Commission of the European Communities) Thus, as the common security force on which Europe and the United States have relied for almost sixty years, it falls on NATO to address collective energy security. In fact, NATO Secretary General, Jaap de Hoop Scheffer, recently noted that energy security should be brought to "the NATO table." (De Hoop Scheffer)

The Alliance has the benefit of the United States as its primary benefactor with its logistical and command and control infrastructure. Despite the post Cold War drawdown in many member states and the much publicized “capabilities gap”, the Alliance is still a potent force capable of taking on such a mission, provided the political will is there.

This is a new venture for the Alliance, but one that it is taking seriously. Yet, for many reasons a NATO solution may not be possible, either because of internal dissent, inflexibility in its decision making process, or the scope is too far outside its traditional area of interest. Furthermore, NATO’s shift to guarantor of Europe’s energy supply may be too provocative; Russia was the core component of the Soviet Union, NATO’s traditional Cold War enemy, and the GME nations are openly distrustful of the Alliance, believing it to be a U.S. puppet. In this case a more narrowly focused, independent organization similar to the PSI could meet the security need.

An example of such a security regime based on the PSI principles is Pacific Command’s (PACOM) Regional Maritime Security Initiative (RMSI). Announced in 2004, the RMSI is focused on identifying, monitoring and intercepting maritime threats in the South China Sea, primarily the Malaccan Straits. Similar to the PSI, the RMSI is loosely structured allowing nations to contribute at will and with whatever possible resources. (Rosenberg)

There are two broad considerations to be addressed; one is the security of energy supplies and fissile material, the other is resiliency of the energy supply chain. The interconnected natures of these issues indicate the narrow balance that exists for policy analysts.

Critics will question the resolve and long-term effectiveness of a coalition with no formal bonds or legal mechanisms. Nevertheless, the PSI has proven that a core of like-minded nations can come together, however loosely, to address an issue of mutual concern. It should be noted that PSI has notched up some significant successes over the years, forcing Libya’s Muammar Khadafy to forego his WMD programs and exposing Pakistan’s A. Q. Khan network. An energy security-based coalition, comprised of many of the existing PSI members, could be as easily imagined as a non-proliferation-based coalition.

Improvements in reactor design and reprocessing techniques are reducing the quantities of fissile by-products, thereby limiting transportation and storage requirements. This still does not alleviate the need to transfer waste products for reprocessing or storage, a security problem in and of itself. Nuclear fuel banks would, theoretically, provide a ready supply of fuel for countries developing nuclear energy as well as a safe repository, thereby creating a virtuous cycle.

The Russian and Kazakhstan joint uranium enrichment center near the Siberian city of Angarsk, coincides with recent U.S.-Russian discussions of cooperation, mostly as a means of removing the Iranian incentive to reprocess its own fuel. (Sands) Though there are significant risks with fissile material regardless of the manager, the Russia-Kazakh joint venture presents unique conditions. For instance, shipping and securing radioactive cargo on the long, arduous road or rail net in Siberia is susceptible to diversion or accident. Russia’s record as a steward of nuclear facilities and fissile material must also be reviewed, while the Kremlin’s history of intervention in the oil and gas industry provides a glimpse of how it might manage something so sensitive and potentially hazardous.

Additionally, will a joint reprocessing and distribution concern have independent management that operates on standard business practices, or will it be a government cash cow? Will it be responsive to inspections and oversight from externally-based organizations, such as the IAEA? Can it be relied upon to ensure the supply of nuclear fuel to dependent nations that may run afoul of Russia’s political agenda?

Within this new framework, any number of reprocessing ventures could be established, preferably in the private sector with IAEA oversight. ESI would maintain a hands-off approach to the nuclear fuel cycle, preferring to let the IAEA assume technical oversight, though stepping forward to provide emergency fuel, technical advice or security elements on an as needed basis.

Serious thought must be given to the scope and parameters of an ESI; ensuring a level of involvement that will accomplish its goal while allowing market forces to prevail. In other words, it should establish a notional umbrella under which commercial activities can engage unmolested, but should not be in the position of picking winners and losers in the energy sector.

Whether threats to the global energy infrastructure emanate from individuals, terrorist organizations, hostile governments, or state monopolistic practices, the impact on the world's economy will be immediate and have short and long-range consequences. The industrialized world may have few options for reversing the restrictions imposed by some states, confronting the threat posed by non-state groups or hostile governments' demands immediate and continuing attention.

In a broader context, we may be seeing the initial stages of a new era of big power rivalry, one not grounded on ideology or raw military power, but based on access and control of energy sources and commercial markets. Moreover, the sea lanes and coastal areas become the new "battle space" for future control. Under these conditions it is not implausible to imagine a multi-polar world of large powers and their satellites, competing in a cold war fashion, for these valuable resources around the world.

Yet, is this also the beginning of international interagency cooperation? It is unlikely that an all-encompassing ESI will emerge any time soon. Perhaps it never will. However, the need is clear for some entity to have security oversight of a broad swathe of energy sector.

To what degree should the independent oil companies (IOCs) and/or NOCs contribute? A successful competitor will see these circumstances as an opportunity for members of government, industry and academia to develop courses of action that will sustain the supply of energy resources and ensure the OECD's, and by extension the developing world's, future economic viability.

The supply chain continues to be the most vulnerable aspect of energy security, and the volatility and criticality of energy supplies supporting free markets will continue to be a security risk in the foreseeable future. As developed countries have a stake in ensuring uninterrupted energy markets, common spaces such as land corridors, waterways, sea-lanes and choke points, become international special areas of emphasis and this emphasis will, on occasion, conflict with sovereignty. Military and security forces will be necessary to physically support energy markets whether they want to or not. Nuclear energy presents an additional challenge to any international oversight regime. It will never replace fossil fuels and comes with its own unique security problems.

It must be asked whether a collective security regime can work, particularly since the energy sector has the potential for "hot war" or prolonged "cold war" conflict or, at the very least, is vulnerable to asymmetric threat well into the foreseeable future. Under an international system of sovereign nation-states, this problem must be addressed in a way that accounts for this fact, as anything less is subject to an unwanted and dangerous "big-power" rivalry.

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Mr. Hamon consults independently for the U.S. Navy on HIV/AIDS in uniformed service populations and for Argonne National Laboratory on threat anticipation research, social science modeling and simulation, and on international commercial logistics. He also serves as Contributing Faculty for the U.S. Army Command and General Staff College. In addition he performs research on civil-military cooperation and planning strategies for international and non-government organizations.

Mr. Hamon retired from the U.S. Army in 1995 after serving as a multi-functional logistician, including 10 years of service in Europe. His final assignment was with the United Nations Department of Peace-keeping Operations (DPKO) where he was Chief of Current Operations, Field Administration and Logistics Division.

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Sources

Birol, Faith, Chief Economist, Economic Analysis Division. "World Energy Outlook: Key Strategic Challenges," Presentation to the International Energy Agency on 22 February 2006. Reference was from an al-Qaeda statement following the October 2002 attack. Currently over 20 percent of the world's oil passes through the Strait of Hormuz, while 4.3 percent and 4.7 percent pass through the Bab el-Mandab and the Suez Canal, respectively.

Blair, Tony, as cited in "More Heat than Light," *The Economist*, 26 May, 2007 .

Bolton, John, House International Relations Committee testimony, 30 March 2004.

Commission of the European Communities, “Green Paper: A European Strategy for Sustainable, Competitive and Secure Energy,” Brussels, 8 March 2006, 8, 14, and 15.

Eherenfeld, Rachel and Alyssa Lappen, citation from an unpublished paper by the Center for the Study of Corruption and the Rule of Law, March 2006.

Energy Information Administration, *International Energy Outlook*, May, 2007, 3.

“For Those in Peril,” *The Economist*, 22 April 2006, 73. Lloyd’s of London has recommended that piracy risk to vessel damage be shifted under war-risk policies.

International Marine Bureau (ICC-IMB) Report on Piracy Against Ships, “IMB report cites spike in piracy,” International Chamber of Commerce, 12 July 2007.

“OECD Factbook,” OECD, 2005.

NATO, “The Alliance’s Strategic Concept,” April 1999.

Nuclear Non-Proliferation Treaty, Article IV: 1.

Rosenberg, David. “Dire Straits: Competing Security Priorities in the South China Sea,” *Japan Focus*, 13 April 2005.

Sands, David R. “Kazakhstan Plans Nuke Fuel Bank,” *The Washington Times*, May 9, 2007.

Scheffer, De Hoop. From a speech delivered at the 42nd Munich Conference on Security Policy, 4 February 2006.

Snoy, Bernard, “Presentation on the OSCE Energy Security Information Mission,” at the International Conference on the Role of Governments and International Organizations in promoting Energy Security, Brussels, 25 October 2006.

United Nations Charter, Article 51: “Nothing…shall impair the inherent right of individual or collective self-defence if an armed attack occurs against a Member of the United Nations….”

UNSC Resolution 1540, Item 10, 28 April 2004.